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REPORT
OF THE
International Congress
FOR THE
Unification of the Numbering of Yarn,

HELD AT THE INTERNATIONAL EXPOSITION,
PARIS, SEPTEMBER 3-4, 1900.

BY
MONSIEUR FERDINAND ROY,
Recording Secretary of the Congress.

Translated by MR. C. J. H. WOODBURY,

NEW ENGLAND COTTON MANUFACTURERS' ASSOCIATION,

April 25, 1901.

Malham, Mass.

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UNIFICATION OF THE NUMBERING OF YARN,

Held at the International Exposition, Paris, September 3-4, 1900.

BY

MONSIEUR FERDINAND ROY,
Recording Secretary of the Congress.

Translated by Mr. C. J. H. Woodbury.

The following was the committee of organization.

President.

ÉMILE WIDMER, Vice-President of the French Association of Manufacture and Agriculture, member of the Commission on Custom House values at Paris.

[NOTE. At the meeting of the Association, held at Montreal on October 6th, 1899, the following resolutions submitted by a committee consisting of Messrs. NATHANIEL B. KERR, ARTHUR H. LOWE and CHRISTOPHER P. BROOKS, were adopted. (Volume 67, Page 92.)

Resolved, That the New England Cotton Manufacturers' Association learns with interest that a conference is to be held in Paris in 1900 with a view to the unification of yarn numbering.

Resolved, That the object of the conference is heartily approved, and that this Association recommends the adoption of a single standard to indicate yarns and threads of all materials, more especially those made of cotton.

Resolved, That the President and Secretary of this Association be authorized to communicate these resolutions to the Secretary of the Conference.]

Vice-Presidents.

D. CHEDVILLE, President of the Association of Woolen Spinners of the Seine-Inférieure, of l'Eure and of Calvados at Saint-Pierre-lez-Elbeuf.

FERDINAND ROY, Vice-President of the Association of Cloths and Textile Materials at Paris.

Secretaries.

PAUL FLEURY, Engineer and Manager of the Counting House of Linen Manufacture at Paris.

J. PERSOZ, Director of the Value of Silks and Woolens at the Chamber of Commerce at Paris.

ÉDOUARD SIMON, Civil Engineer, Paris.

ABBE VASSART, Director of the Technical Institution of Roubaix.

Members.

AGACHE, President of the Industrial Society of Lille.

ANGELOT, Member of the Chamber of Commerce of Paris.

AYNARD, Vice-President of the Chamber of Deputies, Honorary President of the Chamber of Commerce of Lyons.

BARAT, Secretary of the General Association of Cloths and Textile Materials.

BESSELÉVRE, President of the Industrial Society of Rouen.

BIPPER, Director of the Value of Silks, Cottons and Woolens at Roubaix.

BONTE, Director of the Value of Textile Materials at Tourcoing.

CARMICHAEL, Jute Spinner.

CORDONNIER, President of the Industrial Society at Roubaix.

FOUGEIROL, Senator.

GEORGEOT, Editor of the *Travail national*.

HÉNON, President of the Association of Manufacturers of Laces and Tulle at Calais.

HUOT, Member of the Chamber of Commerce of Paris.

IMBÉ, Professor of the National Conservatory of Arts and Measures.

ISAAC, President of the Chamber of Commerce of Lyon.

LAMY, President of the Industrial Society of Amiens.

LEGROS, President of the Woolen Society of Fournies.

MARTEAU, President of the Industrial Society of Reims.

NIVERT, President of the Industrial Society of Elbeuf.

PETERS, Councillor of Foreign Commerce at Épinal.

SÉBASTIEN, President of the Industrial Society of Saint-Quentin.

SIMONNOT-GODARD, President of the Association of Cambric and Fine Linen.

TEISSIER DU CROS, Spinner of Raw Silk.

TERNYNCK, Manufacturer at Roubaix.

TESTENOIRE, Director of the Value of Silks at Lyon.

TOURON, Member of the Chamber of Commerce of Saint-Quentin.

OFFICIAL DELEGATES OF THE FRENCH AND FOREIGN GOVERNMENTS.

Germany.

MÜLLER, Councillor of the Imperial Office of the Interior at Berlin.

VOGEL, Councillor of Commerce at Chemnitz.

Austria.

DE PACHER, Ex-Deputy, Councillor of Imperial Commerce, President of the four preceding Congresses.

Chevalier MITSCHA DE MAERHIM, LL. D., Director to the Royal Minister of Commerce.

Belgium.

CH. MÜLLENDORF, Honorary President of the Chamber of Commerce of Verviers.

L. ZURSTRASSEN, Engineer at Verviers.

E. MATHUS, Inspector of Mills to the Minister of Manufactures and Labor.

Spain.

RAPHAEL PUIG Y VALLS, Director of the Section of Manufactures at the Exposition of 1900.

United States.

ALBERT LIGON, Engineer, former Mechanical Director of the New York Silk Conditioning Works.

France.

COUSIN, Assistant Director to the Minister of Commerce.

BRETON, Assistant Director to the Minister of Manufactures.

JASSERON, Assistant Superintendent of Military of the First Class.

Great Britain.

AUSTIN C. B. LEE, Secretary of the Embassy.
H. M. BRIGSTOCKE, Colleague Delegate.

Hungary.

DR. LOUIS BALLAI, Councillor of the Section to the Royal Hungarian Minister at Budapest.

Italy.

ERNEST DE ANGELIS, Senator, Commander of the Crown of Italy.
ATTILIO LENTICCHIA, Professor of Industrial Schools.
BARON COSTANZO CANTONI, President of the Italian Cotton Association.

Japan.

IMANISHI, Engineer of the Silk Laboratory at Yokohama.

Luxemburg.

VICTOR CONROT, Director of the Luxemburg Cloth Manufacturing Works at Pulfermulh.

Mexico.

A. BEC, Engineer.
J. LÈBRE, Engineer.
JOSÉ C. SEGURA, Agricultural Engineer, Director of the School of Mexico.
ALFREDO BABLOT, Receiver of Customs at Mexico.

Russia.

PROF. KOPOSOF, of the Technical Committee of Finance.
NEDYKHLAEFF, Chief of the Russian Section at the Exposition of 1900.
Prof. GENECHINE, of the Institute of Technology at St. Petersburg.

Sweden and Norway.

BLOMBERGH, Manufacturer.

Switzerland.

CARL SIEGFRIED, Director of the Value of Silks at Zurich.
RIÉTER-FENNER of Winterthur.

Turkey.

GRÉGOIRE HUMRUZ, Consulting Engineer of the Port of Salonique.

Number of French associates,	245
Number of foreign associates,	106
Total number of associates to Congress,	351

Votes proposed to the Sections by the Commission of Organization. The Commission of Organization gave notice:

1. That the resolutions adopted in the former Congresses ought to be approved without renewed discussion and that the records of the present Congress ought to be limited to putting the resolutions into practice.
2. That the Congress should request the Minister of Commerce and Manufactures of France to decree as the legal number for cotton yarn the number of metres to the gramme according to the notice authorized by the Chambers of Commerce consulted by the Commission of Organization of the Congress. And that the laws endorsed by the decree of 1810 ought to be re-enacted in the new decree.
3. That the Congress should request the meeting of a diplomatic conference, in order to reach an international understanding.
4. That after the issuance of the laws and decrees made by the action of the diplomatic conference, the importation of foreign yarns wound in a form deemed illegal should be forbidden in the countries which will adopt the new system.
5. That the Congress should name a permanent international Commission for the purpose of executing the work of the Congress.
6. *That the Congress should vote to send the following address to the Association of the Chambers of Commerce to be transmitted to all the Chambers of Commerce which met in London last June.

*See page 23.

OPENING SESSION, SEPTEMBER 3, 1900.

President JEAN COUSIN, Assistant Director of Commerce to the Minister of Commerce and Manufacture, in the chair.

The formal opening of the Congress was held in the palace of Congresses at the Universal Exposition, Sept. 3, 1900, at 10 A. M., Monsieur JEAN COUSIN in the Chair.

Monsieur WIDMER, President of the Commission of Organization of the Congress, thanked Monsieur JEAN COUSIN, Assistant Director of Commerce to the Minister of Commerce and Manufacture, representing the minister who had accepted the honorary presidency of the Congress.

Monsieur COUSIN thanked Monsieur WIDMER for his cordial words. He explained that the Minister of Commerce being absent from Paris, found it impossible to fulfil the duties of President which he had accepted, and that he was charged to bring the expression of the deepest sympathy of the Minister for the work of the Congress.

He welcomed the official delegates of foreign governments in the name of the government of the Republic. He congratulated the members of the former congresses who continued in their persistent endeavors to attain the accomplishment of a just purpose. It was necessary, in order to triumph, to bring a force of energy superior to the force of inertia. These customs have been long tolerated. It will require a long time to modify them, but the members of the Congress have on their side the time and merit which always complete everything in the right manner. He closed by saying that he had confidence in the success of the initiative steps taken by the promoters of the Congress.

The President stated that the principal originator of the Congress was one of the officers of the Commission of Organization, Monsieur CHEDVILLE, to whom he gave the floor.

Monsieur CHEDVILLE requested Monsieur COUSIN to express to the Minister of Commerce the thanks of the Commission of Organization for the valuable assistance which he had accorded

to it. He had confidence that the Minister would take upon himself to give a definite sanction to the votes which the Congress could not fail to pass. The French Government is not the only one which has grasped the importance of this Congress, since fifteen leading foreign nations are represented by 27 official delegates, while at the Congress of Paris in 1878 there were only six powerful foreign countries represented by seven delegates.

He recalled the letter in which Monsieur DE PACHER and Monsieur MÜLLENDORF had declared that in their view, the principal end of the Congress ought to be to encourage on the part of the French Government the assembling of a diplomatic international conference which would render obligatory in all countries the unification of the numbering of yarn.

Monsieur DELCASSE, the French minister of foreign affairs, while favorable to this proposition, had not overlooked the fact that this class of conferences could be efficient only as the result of the establishment of a previous understanding which accordingly ought to be unanimous and that it would be possible for the refusal of a single power to wreck the conference.

Monsieur CHEDVILLE cited the report of Monsieur HETZER of Vienna who had estimated that the countries having declared the wish to adopt the metric numbering of yarn represented a population of about 120,000,000 and that the official documents showed that there were more than 550,000,000 people using the decimal system. He mentioned the resolutions taken by the 171 English Chambers of Commerce in convention last June which had declared in favor of the metric system. He had, therefore, cause to hope that the English Government would pass the bill which would render the metric system obligatory in the United Kingdom for all transactions. He then quoted the last paragraph of the letter of Monsieur DE PACHER of Austria to Monsieur ALFRED PICARD, Commissioner General of the Exposition:

“ If the Universal Exposition of 1900 accomplishes the work of the actual and practical unification of the method of stating

the degree of fineness of the yarns of all varieties of fibres which the textile industry makes for cloths in the whole world, this will not be the least of the merits which will ensue from this gigantic enterprise, and future generations will be thankful to France for having accomplished this reform as difficult as it is useful in its results."

The President congratulated Monsieur CHEDVILLE for his report and proceeded to the nomination of the permanent board of the Congress, as follows:

Honorary President.

The Minister of Commerce.

Acting President.

DE PACHER DE THEINBURG, Imperial Councillor of Commerce, Austrian Delegate.

Vice-Presidents.

1. For France : CHEDVILLE, WIDMER, FLEURY, AUGUSTE ISAAC, President of the Chamber of Commerce of Lyon.
2. For foreign countries : CHARLES MÜLLENDORF, Honorary President of the Chamber of Commerce of Verviers, Belgium ; Baron CANTONI, Manufacturer at Milan, Italy ; VOGEL, Appellee Councillor of Commerce at Chemnitz, Germany ; AUSTIN LEE, Secretary of the British Embassy ; CARL SIEGFRIED, Director of the Value of Silks at Zurich, Switzerland.

General Secretary.

ÉDOUARD SIMON, Civil Engineer.

Recording Secretary.

FERDINAND ROY, Manufacturer.

Secretaries.

1. For France : TESTENOIRE, Director of the Value of Silks at Lyon ; the ABBÉ VASSART, Director of the Technical Institute of Roubaix ; ARTHUR BONTE, Director of the Value of Woolens at Tourcoing ; PIALAT, Director of the Value of Silks at Saint-Etienne ; CHARLES GEORGEOT, Publicist, Secretary of the French Association of Labor and Agriculture.

2. For foreign countries : BASILIO BONA, Manufacturer at Milan, Italy ; WILLIAM ROWLETT, President of the Chamber of Commerce at Leicester, England ; RIETER-FENNER, Manufacturer at Winterthur, Switzerland ; RAFAEL PUIG y VALLS, Manufacturer at Barcelona, Spain ; ALBERT LIGON, Mechanical Engineer, representing the United States of America ; HAARHAUS, Director of the Value of Silks at Elberfeld, Germany.

Corresponding Secretary.

LUCIEN BEER, Manufacturer at Elbeuf.

These several persons were elected by acclamation.

Monsieur JEAN COUSIN yielded the chair to Monsieur DE PACHER who had been chosen Acting President.

Monsieur DE PACHER thanked the members of the Congress and explained his point of view of matters appertaining to the work of the Congress. He believed that the numbering of yarns could not be introduced in every country except by the authority of a law positively ordering its use to take place on a certain date for all textile industry and for all commerce in every kind of yarn. The change would be made by a law, or it would not be made at all. He was convinced that the spinners who commenced to wind and to number their products according to the resolutions of the Congress before a law should be enacted to forbid the sale of yarns wound and numbered according to the old way, would probably keep their yarns and would be obliged to sell at a loss.

He recalled that the international relations of yarns in commerce are today too well developed for a single country, with the exception, perhaps, of France, to take upon itself such a reform without being assured that its neighbors and competitors would simultaneously do the same thing. The aim of this Congress ought to be to convince the several governments of the necessity of arranging among themselves upon the best manner of simultaneously introducing by-laws, if not identical at least based upon the same principle, the reform drawn up by the former Congresses.

He closed by saying that a great work would remain after the adjournment of the Congress, to the members of the permanent international commission which would be nominated, but he was convinced of the final success, because, he said, "The commercial and industrial advantages are on our side."

The President gave the floor to Monsieur SIMON for the report which he had drawn up in the name of the Commission of Organization.

Monsieur ÉDOUARD SIMON commenced by complimenting Monsieur DE PACHER who had had the great wisdom to follow continually since 1873 the reform to which the present Congress was devoting itself. He recalled that Monsieur DE PACHER had already presided over the Congress of Brussels in 1874, Turin in 1875 and Paris in 1878. He associated with this acknowledgement Monsieur MÜLLENDORF, Ex-President of the Chamber of Commerce of Verviers.

Monsieur ÉDOUARD SIMON also recalled the works of the former Congresses. "In proportion as human learning develops, so the international relations are multiplied. The specialists of all countries feel the advantage of uniform measures which facilitate and simplify transactions. No part of this standardizing appears to have as urgent a need as in the textile industries where in the same cloth they use textile materials of different kinds." He thought that there was not on the part of Great Britain anything that could make objections of a nature to nullify the actions of the Congress, because the English Chambers of Commerce had manifested a favorable course to the adoption of the decimal system.

Monsieur ÉDOUARD SIMON explained furthermore in order to answer an objection raised by many foreign countries who indicated that even in France the unity did not exist, that the Commission of Organization had submitted to the French Chambers of Commerce, previous to the Congress, a project to modify the numbering of cotton based upon the kilogramme the same as for the other textile materials, and replacing the old French standard for silk by a metric and decimal standard.

The Chambers of Commerce have unanimously approved these propositions.

He closed with these words:

“ To sum up, the standardizing is not hindered by the attachment of the English Government to a system of measures of which the merit is merely that of age, but the principal interests represented by the Chambers of Commerce and the scholars of England, desire the adoption of the metric system, and on many occasions have clearly affirmed their approval. We hope, therefore, that the constant agitation at the home of our neighbors across the channel will help the establishment of a reform of which they will be the first to receive the benefit.”

The President thanked Monsieur SIMON for his report which contained the germ of the principal problems of the Congress; he stated that this work would be set forth definitely at the later sessions of the sections.

He gave the floor to Monsieur MÜLLER, Councillor of the Imperial Office of the Interior of Berlin, official delegate of Germany.

Monsieur MÜLLER declared that “ all of the interests in Germany are agreed that there is no question upon the metric system for the international numbering of yarns and that legislation alone is capable of putting it into practice, but there is a difference of opinion upon the expediency of the modification. Under these conditions the government of the Empire has not yet acted in this complicated question of such economical importance, but is continuing to study it with all the interest which it is worth, and as soon as he has good reasons to believe that Great Britain will be associated in an international regulation upon the numbering of yarns based upon the metric system, the question will reach in Germany a great step towards its solution.” He closed by the declaration that “ My Government considers that on the one hand it would be strictly desirable to introduce by an international understanding the unification of the numbering of yarns, but that on the other hand it would be expedient that this regulation should cover completely the inter-

ests of the industries that at the present time have bought principally in England yarns numbered in accordance with the English system."

Mr. ROWLETT, President and delegate of the Chamber of Commerce of Leicester, declared that he had always worked in England for the adoption of the decimal system, and also proposed the adoption of the metric numbering of yarns. He explained the different methods of numbering textile materials and showed all their complications. He announced that there would be submitted at the convention of the English Chambers of Commerce, which is to be held in England in a few days, a proposition to adopt the decimal system and metric numbering, but that while England adopted a metric numbering, it would be necessary that the law should impose upon spinners the obligation to indicate on their packages and on their invoices the metric numbering by the side of the present English numbering.

No one wishing to speak further, the President adjourned the session and announced that the sections of silk, wool, linen and cotton would meet in the afternoon.

The session adjourned at 11.35 A. M.

[The records of the Silk Section, the Woolen Section and the Linen Section are omitted in this translation.]

COTTON SECTION.

The cotton section met September 3rd, at 2 P. M., at the rooms of the general Association of cloths and textile materials at 6 Rue d' Aboukir, Paris.

Monsieur FERDINAND ROY, Recording Secretary of the Congress and Delegate of the Commission of Organization made the following nominations :

President, Monsieur DE PACHER.

Vice-Presidents, Baron CANTONI, Messieurs RIETER-FENNER, and ESNAUT-PELTERIE.

Secretary, Monsieur BARAT.

These nominations were ratified.

Monsieur FERDINAND ROY gave a report which he submitted in the name of the Commission of Organization. It pointed out the efforts made by the Commission in order to reach practical results in France. That it was in this manner that the Chambers of Commerce of textile districts who were consulted, pronounced themselves unanimously in favor of the modification of the present French method of numbering cotton based upon the number of kilometres to the half kilogramme and in order to conform to the decisions of former Congresses requested that textiles, (with the exception of silk), should have a single method of numbering represented by the number of metres to the gramme or kilometres to the kilogramme.

He cited that a decree of December 14, 1810, had enacted this standard but unfortunately the ordinance of May 26, 1819, was repealed in this respect. The Commission of Organization, in taking up the question, wished to submit to the favorable view of the foreign delegates that on their part they should make every effort to obtain from their representative governments the elimination of the different irregular methods of numbering.

The President requested the delegates of foreign govern-

ments to make known the instructions which they received from their governments.

Monsieur RIETER-FENNER, Swiss Delegate, said that he was authorized to declare that the Federal Council assented to all these declarations, and all of the decisions which the Congress should take. It is favorable to the introduction of the metric system of numbering in common with other countries.

Monsieur MÜLLER, German Delegate, referred to the note which he had read at the opening session. He hoped that there would be a general agreement, and in the name of the German government he assented to the resolutions which Congress would pass.

Baron CANTONI, Italian Delegate, stated that it was at the last moment that he had received the commission of the Italian Government to represent it at the Congress and that he did not have any exact instructions, but he reminded them that the Italian Government had always shown itself very favorable to the introduction of the metric system in the numbering of yarn. The only difficulty appeared to come from the fact that Italy being a country devoted to the exportation of yarn, the Italian manufacturers are obliged to pack and number for export according to the English manner. It appeared to him, therefore, essential to urge this upon the English Government, without which it would be difficult for the Italian Government to make a law requiring the metric numbering.

Monsieur ESNAULT-PELTERIE was persuaded that since the great nations, such as France, Germany, Austria, Italy, etc., are unanimous for a single system, England will understand that it is to her interest to adopt that also.

Monsieur MÜLLER reserved his action respecting those matters which were covered by the proposed resolution demanding a diplomatic conference in order to reach an international understanding, as he had no instructions from his government in this respect.

The President stated that it was within his knowledge that the Austrian Minister had received in Berlin the news that the

German Government is prepared to take part in such a conference.

Monsieur FERDINAND ROY asked Mr. BRIGSTOCKE, the English Delegate, if he could indicate what were the inclinations of the English Government.

Mr. BRIGSTOCKE replied that he had not yet received any instructions.

Monsieur FREY asked that the Section should determine the time of transition which ought to be provided in the law enacting in every country the exclusive adoption of the metric decimal system of numbering.

After a discussion in which many members took part, it was decided to propose to the general assembly the following draft:

“That a delay of two years for the promulgation of the law requiring the adoption of the metric system of numbering may be granted for the operation of these new legal measures.”

All of the other resolutions proposed by the Commission of Organization were adopted.

At the end of the assembly of Sections, the presidents of these Sections and secretaries met to draw up the resolutions to be proposed at the general assembly of the Congress.

GENERAL ASSEMBLY.

The General Assembly was held September 4th., at the Palace of Congress, Monsieur DE PACHER, Austrian Delegate, in the chair.

The President gave the floor to Monsier FERDINAND ROY, Recording Secretary, to read the resolutions which were submitted by the officers of the different sections.

First resolution. *For all textile materials under the following reservations concerning raw and finished silks, the number is to be expressed by the number of kilometres to the kilogramme.*

This resolution was adopted unanimously.

Second resolution. *The length of the skein permissible for all kinds of wound yarn is fixed at 1,000 metres with decimal subdivisions.*

This resolution was adopted unanimously.

Third resolution. *Every method of winding is permissible on the condition that it gives 1,000 metres per skein.*

This resolution was adopted unanimously.

Fourth Resolution. “The number of all twisted yarn, either dyed or bleached, is to be determined without any other condition by the number of metres contained in a gramme.”

Monsieur DUCHÈNE offered the amendment “by the number of kilometres contained in the kilogramme.”

Monsieur DE PACHER remarked that the question had been considered in the former Congresses and that in accordance with the principle they had chosen the most simple formula, the unit of weight being the gramme and the unit of length being the metre.

Monsieur PELETZER DE CLERMONT asked why it stated dyed or bleached yarn.

Monsieur FERDINAND ROY stated that it had only followed one of the resolutions passed by the preceding Congress.

Monsieur A. SEYDOUX proposed to insert, “unbleached, twisted yarns, dyed or white.”

After a discussion in which Baron CANTONI, Messieurs PELETZER DE CLERMONT and SEYDOUX took part, Monsieur FERDINAND ROY moved to omit the words “dyed or bleached”, and to give explanation in the text as modified.

Fourth resolution. *The number of all twisted yarn is determined, except when stipulated to the contrary, by the number of metres contained in a gramme.*

The fourth resolution as amended was put to a vote and adopted unanimously, except three votes to the contrary.

Fifth resolution, 1st. part. *The standard of raw and finished silk is determined by the weights in half decigrammes of a length of 450 metres.*

Monsieur VOGEL asked why they had not adopted the resolution of the former Congresses fixing the length at 500 metres.

Monsieur CHAMONARD replied that the length of 500 metres would unsettle the customs in such a manner that it would never be used; besides the Silk Section had passed a vote on this subject of which an explanation would be given to the Assembly.

The President asked Monsieur TESTENORIE to speak on this vote. (The statement is inserted in the report of the meeting of the Section on Silk, omitted in the translation.)

After the complimentary explanations by Monsieur CHAMONARD, the first part of the fifth resolution was adopted.

2nd. part. *The samples will be made upon twenty skeins of 450 metres and the partial results will be written under the customary form.*

The second part was adopted unanimously.

3rd. part. *The bulletin will also indicate under the denomination of the number, the weight in grammes of 10,000 metres.*

The third part was adopted unanimously.

4th., and last part. *In every country the standard bulletins will be made upon the same model.*

The fourth part was unanimously adopted.

Sixth resolution. *The basis of the standard of numbering is conditional.*

This resolution was adopted unanimously.

Seventh resolution. *The conditions will be optional, but it should be obligatory upon the request of one of the parties. It will be absolutely dry without altering the fibre by adding to the weight the correction established by local usages.*

This resolution was adopted unanimously.

These propositions adopted by the several votes were submitted to the consideration of the General Assembly.

Monsieur FERDINAND ROY moved that the Congress issue the following votes:

"That in accordance with the proposition of the Commission of Organization, the French Minister of Commerce and Manufactures wishes to present to Parliament a plan for a law having this purpose :

1st, the repeal of the law of 1819 concerning cotton yarn and the return to the general lines of the decree of 1810 that the numbering may be based upon the number of metres to the gramme.

2nd. The modification for raw and finished silk of the law of June 13, 1866 and the adoption as the legal standard approved by the Congress and based upon the weight in half decigrammes of a skein of 450 metres."

A discussion then took place upon the point as to whether the foreign delegates could take part in a vote concerning this action which did not apply except in France.

Monsieur MÜLLENDORF of Belgium thought that a general vote would have a moral effect and an approval given to the French members who would offer the best example throughout the entire world in demanding from their country the modification of the laws regulating the numbering of yarns which were not found to be in accordance with the decisions of the Congress.

The President consulted the Assembly upon the advisability of a general vote; the majority favored the affirmative.

After a discussion in which Messieurs COUSIN, ED. SIMON, MÜLLENDORF, FERDINAND ROY, WIDMER, A. ISAAC, PEITZER DE CLERMONT and STROHL took part, the phraseology of this vote was amended as follows :

First vote. The Congress is of the opinion that for France, in conformity with the proposition of the Commission of Organization of the Congress of 1900 :

1st. *The royal ordinance of May 26, 1819, should be repealed and a provision substituted imposing for cotton, wool and spun silk a numbering based upon the number of kilometres contained in a kilogramme.*

2nd. *The law of June 13, 1866, concerning raw and finished silk should be amended and the standard admitted by the Congress based upon the weight in half decigrammes of the small skein of 450 metres should be adopted as the legal standard.*

In this form the first vote was adopted.

Monsieur FERDINAND ROY read a paper on the second vote.

Second vote. *That the provisional approval given by the decree of 1810 may be made obligatory in France.*

Monsieur A. ISAAC believed that it would be imprudent to vote the proposed phraseology. He thought it would be preferable to find a wording which would invite the government to seek in the scope of the decree of 1810 the most proper course to make the decisions of the congress for the numbering of yarn respected rather than to ask the Government to use a weapon so old that it could turn against us and produce results which we would be the first to regret. He believed that it would be better not to speak of the decree of 1810, but simply of international measures approved by competent men who would study the best means of practically carrying out the resolutions of the Congress. If it is to our interest to count the number of cotton, wool, or the standard of silk in a certain manner, we shall reach that only by the force of persuasion and not by the application of the rigors of the law. In short, he trusted that the Congress would not make any appeal to the penalties of a law to enact the decisions which it had passed and he requested the defeat of that vote.

Monsieur JEAN COUSIN, said that he was obliged, as representing the Minister of Commerce who had charge of enforcing the law and who was not to discuss when it existed, to make all the reservations on the point of a penal view on the application of the law of July 4, 1837, which had established the metric system of weights and measures in France. That law formerly forbade all denomination of weights and measures other than that which existed in the table annex to the aforesaid law.

Monsieur CHEDVILLE, replying to Monsieur ISAAC, declared that no more than he, did the Commission of Organization wish to cause new impediments to the industrial work, but that if one should examine what occurred in practice it would be proved, that in spite of the law of 1810 and the forcible efforts made by

the industrial societies and chambers of commerce, old usages and local numberings in France prevailed under the empire. The Commission has thought therefore that it should need some word of approval.

Monsieur SIMON of Germany was of the opinion of Monsieur ISAAC, that it was not necessary to threaten but rather to persuade.

The Assembly, on being consulted, were in favor of the suppression of the second vote.

Third vote. *That a diplomatic conference should be held to reach an international understanding.*

This vote was adopted unanimously.

Fourth vote. *That after the promulgation of the laws and decrees enacted at the instance of the international diplomatic conference, the importation of foreign yarns wound in a form deemed illegal shall be prohibited in the countries adopting the new system.*

Monsieur GUÉRIN declared that if one applied this provision to the linen industry before an understanding with England it would cause the destruction of the linen industry because of the great international commerce in linen yarn.

Monsieur FERDINAND ROY stated that the Commission admitted that, exceptionally for linen, it would be necessary to rest in *statu quo* until an understanding may be arranged with England.

Under this reservation, this vote was adopted unanimously, excepting two votes.

Fifth vote. *That a delay of two years to provide for the promulgation of the laws and decrees in different countries may be accorded for the application of these new legal measures.*

This vote was adopted unanimously.

The Congress finally passed the following declaration :

The Congress approves the nomination of a permanent commission charged to petition foreign governments and the French government for the enactment of the resolutions and votes of the Congress.

This resolution was adopted unanimously.

Finally, the Congress voted to send the following address* to the Association of the Chambers of Congress at London, to be transmitted to the Chambers which were represented in the Convention held at London last June:

“The French and foreign manufacturers and sales agents assembled at Paris, September 4, 1900, in the presence of the international Congress for the unification of the numbering of yarn.”

“Being persuaded that the metric system of weights and measures is soon to be the only one used in all countries.”

“Convinced that for the facility of transactions and the simplification of accounts, it is desirable that this result may not be delayed.”

“Considering that the only obstacle is that of the English system and that if the English Government adopted the metric system the question would be solved.”

“Extending to the 171 Chambers of Commerce of the British Empire assembled at London from the 26th to the 29th of June, 1900, their sincere congratulations for the motion which they have passed requesting their government to make the metric system obligatory after a period of two years.”

“Have passed these votes in order that the English Government may reply after the shortest delay to the requests of the British Chambers of Commerce and at the same time at the desire of all countries which should be in harmony with business affairs of Great Britain.”

This address was unanimously adopted.

Mr. BRIGSTOCKE, English Delegate, read at this point a declaration, of which the following are the principal passages:

“For all countries where the decimal and metric system is obligatory, the application of the resolutions passed by the Congress of Paris in 1878 no longer presents the same difficulties as for England where the situation is entirely different; its duo-

*See page 7.

decimal system is the principal obstacle to putting the plan in practice."

"You are not unaware that England is the proper consumer of the greatest part of the product of her spinning mills, without mentioning her colonies and North America where the English weights and measures are legal; on the other hand, her system of numbering of yarns has so entered into the practice of international commerce that it is practically impossible to compel her spinners to adopt two different systems."

"The international unification of the numbering of yarns based on the metric system, according to the opinion of the English Government, is not, under the present circumstances, acceptable with us, and I should add that this opinion is participated in almost unanimously by the English spinners themselves."

"Moreover, I will recall to you the fact that under date of July 22, 1897, a bill authorized the optional employment in the United Kingdom of the metric system concurrently with our national measures, and that up to the present time, this optional usage has remained a dead letter. We can, then, infer that the spinners prefer to continue the present system, which is fully understood in all markets."

"It is for these various reasons that my colleague and myself feel bound to declare that the Government of Her Majesty has accepted representation at this congress, not because it believes the adoption in England of the proposed system possible, but because its delegates can follow up with the greatest attention your debates and give a report of all the resolutions that you have adopted and the motives which prompted them."

Monsieur CHEDVILLE thanked Mr. BRIGSTOCKE for his unexpected communication which informed the Congress on the intentions of England. He said that in spite of their discomfiture, the members of the Congress hoped that matters would progress more quickly than the English Government believed it would, and that it would not show itself too reluctant to the adoption of the metric system.

The President asked if any foreign delegates had any communications to make.

Chevalier MITSCHA DE MAERHEIM announced that the Imperial and Royal Minister of Austria consented to be represented on an international committee which would be chosen by the Congress and charged to follow out, concurrently with different Governments, the formation of a diplomatic conference with the object of settling in a uniform manner the question of the numbering of yarns.

Monsieur RAFAËL PUIG Y VALS said that, as a delegate of Spain, he conformed to the decisions of the Congress.

Monsieur CHEDVILLE proposed that the permanent international Commission be composed of the present Board of the Congress, adding to it representatives of Governments which were not already on this Board.

This proposition was adopted unanimously.

The order of the day being finished, the President thanked Monsieur JEAN COUSIN for the co-operation which the French Government had given so fully to the Congress, and after having thanked the members of the Congress and the representatives of the French and foreign governments, he declared the Congress for the unification of the numbering of yarns adjourned.

PERMANENT COMMISSION.

Immediately after the adjournment of the Congress, the members of the Permanent Commission met; Monsieur DE PACHER in the Chair.

On his proposition the Commission elected its board.

Then he appointed the foreign delegates to constitute, each in their respective countries, executive committees to exploit the decisions passed by the Congress and to request their governments to take part at the proposed diplomatic conference.

MEMBERSHIP OF THE PERMANENT INTERNATIONAL COMMISSION,

ELECTED AT THE GENERAL ASSEMBLY, SEPTEMBER 4, 1900.

FRANCE.

Honorary Presidents.

ÉMILE WIDMER, former Manufacturer, 25, rue de Saint-Petersbourg, Paris ; GUSTAV DE PACHER, Councillor of the Imperial Commerce, former Deputy.

President.

FERDINAND ROY, Manufacturer, 38, rue des Jêuneurs, Paris.

Vice President.

DÉSIRÉ CHEDVILLE, Manufacturer, Member of the Chamber of Commerce d'Elbeuf à Saint-Pierre-lez-Elbeuf (Seine-Inférieure.)

General Secretary.

PAUL FLEURY, Engineer, Manager of the Counting-house of Linen Industry, 9, rue d'Uzès, Paris.

Secretaries.

ÉDOUARD SIMON, Civil Engineer, 89, boulevard du Montparnasse, à Paris.

CHARLES GEORGEOT, Secretary of the Association of French Industry and Agriculture, 1, place Boieldieu, à Paris.

PERSOZ, Director of the Value of Silks at Paris (Bourse du Commerce rue du Louvre.)

Members.

ISAAC, President of the Chamber of Commerce at Lyon.

TESTENOIRE, Director of the Value of Silks at Lyon.

ARTHUR BONTE, Director of the Value of Woolens at Tourcoing.

FIC PIALAT, Director of the Value of Silks at Saint-Étienne.

BIPPER, Director of the Value of Silks at Roubaix.

LUCIEN BEER, Manufacturer at Elbeuf.

FOREIGN.

GUSTAV DE PACHER DE THEINBURG, Councillor, ex-Deputy at Vienne.
 CHARLES MÜLLENDORF, Honorary President of the Chamber of Commerce of Verviers.

Baron COSTANZO CANTONI, (Italy,) 12, via Brera, at Milan.

H. VOGEL, (Germany,) Appellee Councillor of Commerce at Chemnitz.
 Colonel SIEGFRIED, (Switzerland,) Director of the Value of Silks at Zurich.

BASILIO BONA, (Italy,) Manufacturer, Member of the Chamber of Commerce of Turin, at Caselle-Torinese.

W. ROWLETT, (England,) President of the Chamber of Commerce of Leicester, 34 Newark street.

OSKAR HAARHAUS, (Germany,) 12 Hofauerstrasse, at Elberfeld.

M. BRIGSTOCKE, (England,) 9, avenue de Malakoff, at Paris.

EDWARD BLOMBERGH, (Sweden,) Manufacturer, at Norrköping.

RAPHAËL PUIG Y VALLS, (Spain,) of Barcelone.

ALBERT LIGON, (United States,) Engineer, 35, rue des Petits-Champs, at Paris.

KOPOSSOFF, (Russia,) Professor to the Minister of Finances, at Saint-Petersbourg.

JOSÉ C. SEGURA (Mexico,) Engineer, Director of the National School of Agriculture of Mexico.

IMANISHI, (Japan,) Engineer, Assistant Director of the Imperial Value of Silks at Yokohama.

LOUIS BALLAI, (Hungary,) Department Councillor to the Minister of Commerce of Budapest.

GRÉGOIRE HUMRUZ, (Turkey,) Engineer-Counsel of the port of Salonique.

VICTOR CONROT (Luxembourg,) Director of Luxembourg Draperies at Pulfermühl.

NOTICE.

All communications should be addressed to Monsieur PAUL FLEURY, Secrétaire Général , 9, rue d'Uzès, à Paris (4^e arrondissement).

REPORT PRESENTED TO THE MINISTER OF COMMERCE, MANUFACTURES, MAILS AND TELEGRAPHS,

By MONSIEUR FERDINAND ROY,
Corresponding Secretary of the Congress.

[Translated by Mr. C. J. H. WOODBURY.]

Mr. Minister—

In accepting the honorary presidency of the international Congress for the unification of the numbering of yarns, you have testified to the interest that you have in its actions; moreover, the members of the Congress have regretted that your absence from Paris prevented you from presiding at the opening session.

In the name of the Board and in the office of corresponding secretary, I am deputized to call your attention to the resolutions which have been passed and to solicit your able co-operation for putting them into practice.

First, I beg to draw your attention to the promptness with which the foreign Governments have responded to the invitation of the Commission of Organization.

At the last Congress held at Paris in 1878, Austria, Belgium, Italy, Sweden and Switzerland were the only ones represented by official delegates. But this year, to the delegates of these six governments have been added the delegates of Germany, the United States, Great Britain, Hungary, Luxembourg, Japan, Mexico, Russia and Turkey, making in all fifteen countries represented by twenty-six official delegates.

With the exception of Holland, all the countries where the textile industry occupies a position of however little importance, have been represented officially. Is it not an evident proof of the growth of sentiment which is exhibited in all the countries in favor of the unification of the numbering of yarns? As to the rest, all the official delegates — except the English delegates — have brought the favorable opinion of their governments and of the manufacturers of their countries.

Moreover, they have been unanimous in asking for the assembling of a diplomatic, international conference in which would be discussed the possibility of adopting simultaneously, and in all countries, with or without England, for all textiles, or for a portion of textiles, the unification indicated by the Congress.

The international situation for the numbering of the different textiles is as follows :

For raw and finished silk, the opinion of the Congress, as stated below, is unanimous. The diplomatic Conference could easily prepare for adoption as the legal standard in all countries some standard adopted by the Congress.

For cotton, wool, linen and spun silk, all the delegates have declared that their governments were in principle partisans of the metric numbering. The English Government alone, has made known through the medium of her official delegates that the existing English numberings could not be modified until the day when the metric decimal system would be rendered obligatory in England, and that, even then, they could not be certain that the spinners would be disposed to entirely abandon their old practices.

In view of the declarations of the English delegates, the French and foreign representatives of the linen industry have declared that in spite of their earnest desire to adopt the metric numbering, they could not do so until England had effected the same change, for the reason that there was a great deal of international commerce in linen yarns numbered according to the English system.

The same difficulties do not occur for the industries of cotton, wool and spun silk. Many delegates have properly raised some difficulties on the subject of the possibility of making the unification without the co-operation of England, but we think that these could easily be removed in a diplomatic conference.

These are the questions adopted by the Congress as worthy of being discussed to a finality by the diplomatic conference.

1. Unification of the standardization or raw and finished silk in conformity to the resolution passed by the Congress of Paris in 1900 ;

2. Unification of the kilogrammetric numbering of wool, cotton and spun silk in all countries except England, expecting that England, by the general adoption of the metric decimal system, then of the metric numbering, will be added to the concurrence of the other countries. Linen would be excepted provisionally for the reasons announced above.

3. The adoption of the kilogrammetric numbering for all the classifications of the custom tariffs. (At the present time the custom tariffs of Germany, Austria and Spain, are established according to the English numbering. The Belgian tariff for cotton is calculated on the num-

ber representing the number of kilometres contained in the half kilogramme as in France.)

I have indicated to you above the communications made by the delegates of the English Government; inasmuch as the attitude of England is one of the delicate points, permit me to give you the impression of the members of the Congress:

This impression is that the manufacturing and commercial interests of England are fully persuaded that it is to their advantage to adopt the metric decimal system, and that the opposition comes rather from the Government.

Indeed, the Congress has put in evidence the resolution passed by the 171 Chambers of Commerce, both of England and her colonies, which met at London this summer, petitioning the passage by Parliament of a bill rendering the metric system obligatory after a period of two years. It is true that one of the official delegates of England has maintained that the Congress ought not to attach so much importance to this vote which was sentimental, the Chambers of Commerce demanding for the form an improvement which they knew there was no chance of passing for a long time in the future.

Since the Congress, I have had the opportunity to consult some members of the most important Chambers of Commerce of England, and they have formally assured me that far from being sentimental, the vote expressed by the Chambers of Commerce was the most serious and indicated without the possibility of a doubt, the favorable feeling and positive benefit from the English industry and commerce accompanying the metric system.

However, at the same Congress, Mr. Rowlett, President of the Chamber of Commerce of Leicester, was the representative of their numerous English manufacturers who find their numbering of textile materials undesirably complicated. How could it be otherwise, when one sees that in England there are as many different numberings as there are textiles, cotton, wool, linen and spun silk.

At present, one of the arguments of the English Government is this: the international commerce is carried on under the English numbering and this proves how much this numbering has entered into the customs so that even in certain countries where the metric system is obligatory, the custom tariffs are established for yarns according to the English numbering. It is for this that we propose that for the future the custom tariffs may all be established according to the metric numbering.

The Congress has proposed that from the day when a certain number of countries will be united in making the unification, the introduction of yarns which are not wound and numbered metrically, may be prohibited.

This clause would not prevent, as some fear, the introduction of yarns wound according to the English method, for I can assure you that the English spinner readily favors dividing and numbering yarns metrically. You can obtain an account of it, Mr. Minister, by applying to the French custom house: It will tell you that the very great majority of English cotton yarns imported in France are wound metrically. The only inconvenience that this measure would involve would be to deprive the foreign manufacturers of the privilege of drawing from the stocks of wound yarns existing in England, stocks which necessarily are made according to the English winding.

The Italian delegate has pointed out that the Italian spinner, exporting much in the Mediterranean in concurrence with the English spinner could not export otherwise than by following the English customs. To this the reply was made that the metric numbering would be required only for the interior consumption of each country, but that for exportation the spinners would always be free to yield to the demands of each market.

I believe, therefore, that these small difficulties can be removed in a diplomatic conference, and that all the countries, excepting the momentary exclusion of England, can be unanimous in simultaneously making the unification.

I am going to speak to you, Mr. Minister, of the international question. It remains for me to talk with you of some exclusively French questions which have been presented to the Congress, by pointing out to you that the foreign members have much desired to vote with the French members and to recommend the changes which they were demanding in order to bring about the unification, at least in France. These two measures are of importance.

1st. The standardizing of silk.

2nd. The numbering of cotton.

For raw and finished silk, France has maintained up to the present time the old standard; the grain or denier (a copper coin weighing $1\frac{1}{4}$ grammes) being the unit of weight and the ell being the unit of length. The legal standard indicated by the law of June 13, 1866, and express-

ing the weight in grammes of a small skein of 500 metres has never been adopted by commerce.

The preceding Congresses have proposed to adopt as a uniform and international standard, the weight in grammes of 10,000 metres of yarn. It is this standard that the Commission of Organization asked the Congress to confirm. But after a meeting held at Lyons in the course of the summer and when the directors of the principal manufacturing establishments of France and of foreign countries had advised the adoption as the uniform, international standard of the legal Italian standard expressing the weight in half decigrammes of the small skein of 450 metres, the Silk Section and afterwards the General Assembly of the Congress adopted this resolution.

For cotton, the legal and usual French numbering indicates the number of kilometres contained in the livre or half kilogramme, while for other textiles, wool, spun silk and hemp, the number indicates the number of kilometres to the kilogramme. This is an anomaly which ought not to exist. It is much preferable that the number of cotton yarn be based upon the kilogramme. The Commission of Organization of the Congress has consulted the Chambers of Commerce in all the textile centers in France, and all have approved this modification.

Accordingly, Mr. Minister, the members of the Congress have charged me to ask you:

1st. To revoke the ordinance of May 26, 1819, substituting for it a provision imposing, for cotton, wool and spun silk, the numbering based on the number of kilometres contained in the kilogramme.

2nd. To modify the law of June 13, 1866, concerning raw and finished silk, in order to adopt as the legal standard the weight in half-decigrammes of the small skein of 450 metres.

If you will indeed bring about these two reforms, France would assuredly give an excellent example to the other countries, who, on their part, would desire to suppress the irregular numberings among them.

Outside of the introduction of these reforms in France, there is the international question which I have submitted to you in the first part of this report.

The members of the Congress have elected a permanent, international commission charged with endeavoring to obtain simultaneously among their different Governments, the assembling of a diplomatic conference. I have the honor to be the President of this Commission,

and I am going to ask you in its name to fully consent to advocate before the Minister of foreign affairs, our request for a meeting of this diplomatic international conference.

Please accept, Mr. Minister, the expression of my highest esteem and respect.

FERDINAND ROY,

Recording Secretary,

President of the Permanent International Commission.

GENERAL REPORT ON BEHALF OF THE COMMISSION OF
ORGANIZATION.

By ÉDOUARD SIMON, *Secretary.*

[Translated by Mr. C. J. H. WOODBURY.]

It is our good fortune to have with us a number of pioneers, among the most eminent of them being Monsieur VON PACHER, who had the great merit to urge without ceasing, since 1873, the reform for which we are seeking in our turn, your active and persistent alliance. It is an agreeable duty to welcome at the beginning of this session the Recording Secretary of the Congress of Vienna who presided with impartiality and constant fidelity to duty successively over the Congresses of Brussels, Turin and Paris.

We find here, always animated by the same ardor, a worthy representative of the important concentration of industries at Verviers, Monsieur MÜLLENDORF, honorary President of the Chamber of Commerce.

Unhappily indeed, gaps have been made in our ranks, and we deplore the absence of devoted associates, illustrious leaders, such as POUYER-QUERTIER and MICHEL ALCAN.

There is an obligation on our part to present a history of the question, to explain the motives of certain essential particulars adopted by the former Congresses in order to introduce the new members and to cause them to take the place of their predecessors without hesitation or apology.

In this connection, the report addressed, in 1874, to the Minister of Commerce by MICHEL ALCAN, delegate of the French Government to the Congress of Brussels, furnishes some very useful suggestions of which we cannot do better than to reproduce the principal passages:

“For a long time,” wrote MICHEL ALCAN, “the enlightened

manufacturers and merchants of all countries have recognized the necessity of a reform from the double views of the facility and honesty of commerce, but no initiative was taken on this subject until the last universal Exposition at Vienna, in 1873. The Chambers of Commerce of manufactures at Lower Austria, placed itself at the head of the movement, in order to accomplish the unification of the standard, and a former Congress, under the presidency of Baron VON RECKENSCHUTZ was held at Vienna the same year. This assembly, of which the Recording Secretary was Monsieur GUSTAV VON PACHER VON THEINBURG, a leading Austrian manufacturer, recognized, after discussion, the advantages of the metric decimal system and adopted for the basis of the new standard the kilogramme as the unit of weight and the kilometre as the unit of length,

In spite of the simplification which should result from the general adoption of these units, there were certain difficulties in their application and objections to details. The novelty of the system for many countries showed the necessity of a new international Congress which was called at Brussels, September 21, 1874, by the Chamber of Commerce of Vienna with the approval of the Belgian Government."

At the request of the central committee, sixty official delegates responded, representing the manufacturing countries of Europe.

England herself wished to prove by sending commissioners, her interest in the project.

The questions with which this Congress occupied itself were the following:

I. Is it desirable to maintain the principle adopted by the former Congress, to admit as the basis of the universal standard the metre and the gramme?

The response was unanimously in the affirmative. In consequence, excepting the modification which will be mentioned later and which applies to silk, No. 1 will correspond to a length of one metre weighing one grammie, or 1,000 metres weighing one kilogramme for all kinds of yarns.

If a double length is the same weight, that will be number 2, and so on in proportion.

II. Is it necessary to prescribe a skein winder of determined form and dimensions when it is a question of transforming the yarn into skeins? Should this skein winder be modified according to the nature of the yarns?

It has been recognized that the application of the metric standard is independent of the system of skeins, the legal length of 1,000 metres being the result of a circumference which can be varied according to the number of revolutions of the skein winder or of any other mechanical device made for that end.

The second part of the question is answered by the reply to the first. It is evident, moreover, that the same machine could serve in the skein winding of all kinds of textile materials, if the methods of the consumers and the customs of manufacturers did not require different lengths of skeins and relying upon the practical facts and wishing to facilitate the extension of the metric system, the Congress has not rejected any of these circumferences capable of giving a length equal to 1,000 metres.

III. Is it necessary to adopt for a standard of raw or thrown silk yarn a numbering identical with that of other textiles; that is to say, the decimal metric standard? Should the scale of numbers increase in the manner that the highest number corresponds with the finest yarn, as in other specialties?

The international Congress of Vienna in 1873 had resolved affirmatively on these two questions, but after investigations, following the careful discussions in the meetings, the special committee, in the name of which the Commander, JOSEPH FERRERO, delegate of the Chamber of Commerce of Turin made a remarkable report, proposed, and the Congress of Brussels unanimously ratified the following resolutions:

a. The numbering of raw or thrown silk will be based like that of other textile materials upon metric and decimal measures with 1,000 metres for the unit of length and the decigramme for the unit of weight.

b. In order to conform with the commercial usages of all silk

raising countries, the scale of numbers will be based upon the variable weight with a fixed unit of length, and the samples will be made on the length of 500 metres.

"As one sees", concluded MICHEL ALCAN, "the principle submitted by the Congress at Vienna has been maintained, but the elementary method adopted by that Congress has been modified in conformity with ordinary and correct practice. In the case of silk, the yarn of various sizes is obtained from the finest element by joining a greater or less number of these elements, while for other materials, the spinner takes a fibrous mass which diminishes progressively. This method of inverse work imposes upon the state in which these first materials are made a method of numbering where the graduation is evenly reversed."

This gives a practical consideration which does not impede in any manner the application of the metric decimal system which caused the Congress to determine to adopt 500 metres for the legal length of samples in the public market. Twenty samples made upon small skeins of 500 metres, as is already done in practice, shows the irregularities of the thread in a more evident manner than ten samples of 1,000 metres in length.

Our colleague, Monsieur JULES PERSOZ, in his last work on *l'Essai des Matières Textiles*, (The Testing of Textile Materials) recalls that the Congress of Turin in 1875 endorsed the above conclusions that had been studied and adopted in accordance with the common view of the last details of the application, and that later, the Congress of Paris, in 1878, through its Recording Secretary, Monsieur GUSTAVE ROY, former President of the Chamber of Commerce of Paris impressed the French Government on the question in which we are interested and asked for the assembling of a diplomatic international conference.

The initiative by individuals meets too great obstacles to hope for a solution in conformity with our views, through public sentiment, without the intervention of the governments, of the several manufacturing countries in the adoption of concurrent, legislative measures. The Minister of Commerce, the Honorable

Monsieur TEISSERENC DE BORT, to whom the delegates of the Congress of 1878 submitted an address, was of the same opinion and was among the first to grasp the importance of the desired reform. Continually, in spite of the cordiality with which it welcomed the votes of this last Congress, no practical sanction has been manifested to this day.

The Universal Exposition of 1900 presented to some among you an exceptionally favorable occasion for taking up this question for the unification of spinning and methods of sampling these materials. In proportion as human knowledge is developed, and international relations multiply, the specialists of all countries will appreciate the necessity of uniform measures which facilitate and simplify transactions.

No part of the need of uniformity appears as imperative as that of the textile industries where in still smaller and smaller degree the manufacturers are limited in the choice of textile materials. Sometimes by the necessities of economy, sometimes to satisfy the demands of fashion, now and then to comply with the double conditions of economy and novelty, the manufacturers combine in the same fabrics yarns of different nature and standard. It is not rare to find in a cloth threads made of a mixture of different materials, but with warps where are placed side by side plain or twisted cotton, spun silk, worsted, with silk filling, or just the contrary. This instance will warrant the unification in the interests of the manufacturer who is obliged to give his personal attention to long and difficult calculations without profit to anyone, calculations only for the purpose of bringing to the same standard the numbers of yarns of various countries to make the conversion of standards which are variable with the country and also with the nature of the materials.

After having previously communicated their views, two promoters of this Congress, Monsieur CHEDVILLE, President of the Association of Woolen Spinners of the Lower Seine, of l'Eure and of Calvados, and Monsieur VON PACHER, whom you already know, found themselves upon the same ground; to improve to the best possible advantage the reunion at Paris of the manu-

facturers of all countries to reach the desired unification of which the principle was decided 25 years ago and which still remains otherwise.

Under the auspices of the Commissioner General and with the approval of the untiring delegate of the Congress, Monsieur GARIEL, a Commission of Organization, of which the members have been obtained in the principle centers of spinning and weaving, which is fundamentally attentive to the state of opinion in France and foreign countries. It is necessary, indeed, before impressing the public powers anew as to our desires to know if these votes still conform to the wishes of those principally interested.

Thanks to the energy of our President and senior member, Monsieur WIDMER, whose strength does not diminish by years, thanks to the devotion of our Treasurer, Monsieur FLEURY, who does not spare either time or labor, the French and foreign Chambers of Commerce, the Consulting Chambers of Arts and Manufactures, the Manufacturers Associations have been consulted through the medium of circular letters prepared and signed by all the officers of the Commission of Organization upon the usefulness of the projected Congress, and upon the immediate practicability of the unification.

We will not tire you by the details of that correspondence. We will keep within bounds by indicating the result: "All of the French Chambers of Commerce in the textile centers, with the exception of two, at the date of the third of last July, have passed the resolutions endorsing the unification of the numbering of yarns." At the same time the Minister of Commerce, at the request of our President in the issue of this inquiry, wished to prove the interest which he had in this reform in accepting the honorary presidency of the Congress and in appointing to carry out its work, two delegates of his ministry, Monsieur BRITON, Assistant Director of Manufactures, and Monsieur COUSIN, Assistant Director of Commerce.

On his part, the Minister of War has appointed Monsieur JASSERON, Assistant Military Superintendent of the first class.

Finally, the Minister of Foreign Affairs has given to our Pres-

ident the assurance of his essential coöperation for the assembling of a diplomatic, international conference if, as it is hoped, all of the resolutions of this Congress are consistent with the conclusions of the former Congresses.

What then could be a stumbling block today? What is the nature of any objections to impede so great efforts?

It is important to reply in all candor to this inquiry. Great Britain, in refusing to adopt the decimal metric system, constitutes the principle obstacle — and we should not say that we owe it to Great Britain, but to the government of Great Britain — because there is manifested in the Chambers of Commerce of the United Kingdom, a very favorable opinion towards the adoption of the decimal and metric weights and measures. Among the tentative proceedings in this direction by the delegates of a great number of English Chambers in 1895, Minister BALFOUR only opposed the question of the suitable opportunity, declaring that the education of the English people had not been sufficiently developed and that it would be necessary to prepare the young generations for the introduction in the programmes of teaching, the study of the metric system, that moreover, in our own country, absolute unity does not exist.

This last objection was a blow to us and your Commission of Organization is preparing to disprove it. It seems to me that in order to be perfectly logical, it is necessary to break away in a definite manner from the former usages which have only in their favor the force of custom, so that it is necessary to give a good example in substituting the kilogramme for the half kilogramme as the basis of the numbering of cotton yarn.

This transformation is simple, since it is easy to multiply the actual number by two, that is to say, to double it in order to obtain the proposed standard number.

You will find among the sections of the imperial decree of December 14, 1810, one closing as follows: "All dealers in yarn will be obliged to form the small skeins of cotton, linen, hemp or woolen yarn in a thread of 100 metres in length and make the skein of 10 of these small skeins in such a manner that the total length will form a skein of 1,000 meters. These yarns

will be labelled a number indicating the number of skeins necessary to weigh a kilogramme."

Unfortunately, the Royal ordinance of May 26, 1819, annulled the decree stated above and decided that all cotton yarns intended for French fabrics will be labelled by the date of October first of the same year with a number indicating the number of skeins necessary to form the weight in metric pounds or half kilogramme.

At the request of the principal Chambers of Commerce interested, we have requested the Minister of Commerce to ask of Parliament the repeal of the law of May 26, 1819, and to return to the text of the decree of December 14, 1810.

We have thought that there would also be an opportunity to modify, in conformity with the conclusions of the former Congresses, the French law of June 13, 1866, in accordance with which the standard of silk is represented by the mean weight expressed in grammes of a small skein of 500 metres, the sample being made upon 20 small skeins of the same length.

This legal standard has remained a dead letter and to abrogate at this late day the principle of unification desired, the means to obtain it will be by the adoption of the standard called international based upon the number of grammes that 10,000 metres of silk will weigh, the test before carrying it into effect being made as in the ordinary manner, upon 20 small skeins of 500 metres.

This standard has the double advantage of being metric and differing little from the standard in price.

In requesting the Minister of Commerce to aid us by all his power in the vote which we desired, we have sought, meantime, to record a reservation at least temporary in regard to the spinning of linen and jute.

The spinners of Lille and Dunkerque have stated that the international commerce of linen and jute yarn is in the hands of England and that as long as the kilogrammetric method of numbering of these yarns has not been adopted by Great Britain, our manufacturers will be obliged to market their products in the same methods of skeining and packing as English yarns.

Our object being to facilitate and not to impede commercial transactions, it appears to us necessary to make cognizance of this fact and admit the reservation formulated in regard to linen and jute.

We desire, on the contrary, in order to press forward this unification that for all the other yarns the governments which adhere to the proposed measures will not be obliged to enjoin in their respective countries the necessary authority, but may not permit the importation of foreign yarns divided in a form deemed illegal by their own nation.

It is what Monsieur VON PACHER expressed very sententiously in his letter of August 29, 1899, to Monsieur ALFRED PICARD, in view of the assembling of this Congress, and I ask permission of you to terminate this long report by a citation taken from that. "It is certain that yarns divided and numbered after the metric system will be unsalable in the greater part of European markets as long as it is permissible to buy or sell yarns divided according to the old systems to which many generations have been accustomed. To force spinners by law to divide and number their products metrically and to allow at the same time foreign countries to import their merchandise, divided according to the old system, would be simply to kill the industry of the former. But by appointing a date when the law would forbid all commerce from using a numbering and skeining other than the metric decimal system, England would be the first to divide and number her yarns designed for exportation according to this rational method."

In summing up, the unification is not impeded by the attachment of the English Government to a system of measures whose merit is that of antiquity, but as we have said before, the principal interests represented by the Chambers of Commerce and by the English scientific men desire the adoption of the metric measures and on many occasions have clearly formed this opinion. We hope, therefore, that the subsequent adoption among our friends beyond the channel will hasten the attainment of this reform of which they will be the first to receive the benefit.

DISCUSSION.

Mr. C. J. H. WOODBURY. It may be conceded as an abstract proposition that uniform standards of weights and measures are advantageous in both manufactures and commerce; and that with the increased use of fabrics woven from yarns of different textile materials, a uniform system of numbering yarns would be a convenience at the weaving mill, yet the suggestion to change the standard of numbering yarns to a basis which would require modifications in every step of the design, manufacture and sale of all machine-made fabrics is indeed a radical proposition.

The serious manner in which these innovations have been considered by a body representing all of the textile manufacturing world, entitles their conclusions to careful consideration, and as a convenience to this end, I have computed the following tables for a comparison of the proposed international metric standard with the present English standard of numbering cotton yarn.

In the proposed system, one metre of number one yarn would weigh one gramme; or changing to our measures by substituting the English equivalents for the metre and the gramme, 1.094 yards of number one yarn would weigh 15.432 grains.

The weight in grains of 120 yards of number one yarn as measured by the proposed international metric standard would be

Weight of yarn: $15.432 = 120 : 1.094$.

Weight of yarn = $\frac{15.432 \times 120}{1.094} = 1,692.72$ grains.

To find the number of yarn English cotton standard corresponding to the number of the proposed international metric standard, multiply the international number by .59.

That is, $1,000 \div 1,692.72 = .59076$.

On the other hand, to find the number of yarn international metric standard corresponding to the English cotton standard, multiply the English number by 1.69

That is, $1,692.72 \div 1,000 = 1.69272$.

TABLE I.

CHANGING INTERNATIONAL METRIC STANDARD INTO ENGLISH COTTON YARN STANDARD.

Number of Yarn.		Weight of 120 yards, in grains.	Number of Yarn.		Weight of 120 yards, in grains.
International Standard.	English Standard.		International Standard.	English Standard.	
1	.59	1692.72	43	25.40	39.37
2	1.18	847.45	44	25.99	38.48
3	1.77	564.97	45	26.58	37.62
4	2.36	423.73	46	27.17	36.81
5	2.95	338.98	47	27.76	36.02
6	3.54	282.48	48	28.35	35.27
7	4.13	242.13	49	28.94	34.55
8	4.72	211.87	50	29.54	33.85
9	5.31	188.32	51	30.13	33.19
10	5.91	169.20	52	30.72	32.55
11	6.49	154.08	53	31.31	31.94
12	7.08	141.24	54	31.90	31.35
13	7.67	130.38	55	32.49	30.78
14	8.26	121.07	56	33.08	30.23
15	8.85	113.00	57	33.67	29.70
16	9.44	105.93	58	34.26	29.19
17	10.03	99.70	59	34.85	28.69
18	10.62	94.16	60	35.45	28.21
19	11.22	89.13	61	36.04	27.75
20	11.81	84.66	62	36.63	27.30
21	12.40	80.65	63	37.22	26.87
22	12.99	76.98	64	37.81	26.45
23	13.58	73.64	65	38.40	26.04
24	14.17	70.57	66	38.99	25.65
25	14.76	67.75	67	39.58	25.27
26	15.35	65.15	68	40.17	24.89
27	15.94	62.74	69	40.76	24.53
28	16.53	60.50	70	41.35	24.18
29	17.12	58.41	71	41.94	23.84
30	17.72	56.43	72	42.53	23.51
31	18.31	54.62	73	43.12	23.19
32	18.90	52.91	74	43.71	22.88
33	19.49	51.31	75	44.30	22.57
34	20.08	49.80	76	44.89	22.28
35	20.67	48.38	77	45.48	21.99
36	21.26	47.04	78	46.07	21.71
37	21.85	45.77	79	46.66	21.43
38	22.44	44.56	80	47.26	21.16
39	23.03	43.42	81	47.85	20.90
40	23.63	42.32	82	48.44	20.64
41	24.22	41.29	83	49.03	20.40
42	24.81	40.31	84	49.62	20.15

TABLE I—continued.

Number of Yarn.		Weight of 120 yards, in grains.	Number of Yarn.		Weight of 120 yards, in grains.
International Standard.	English Standard.		International Standard.	English Standard.	
85	50.21	19.92	130	76.80	13.02
86	50.80	19.68	131	77.39	12.92
87	51.39	19.46	132	77.98	12.82
88	51.98	19.24	133	78.57	12.73
89	52.57	19.02	134	79.16	12.63
90	53.17	18.81	135	79.75	12.54
91	53.76	18.60	136	80.34	12.45
92	54.35	18.40	137	80.93	12.36
93	54.94	18.20	138	81.52	12.27
94	55.53	18.01	139	82.11	12.18
95	56.12	17.82	140	82.71	12.09
96	56.71	17.63	141	83.30	12.00
97	57.30	17.45	142	83.89	11.92
98	57.89	17.27	143	84.48	11.84
99	58.48	17.10	144	85.07	11.75
100	59.08	16.93	145	85.66	11.67
101	59.67	16.76	146	86.25	11.59
102	60.26	16.59	147	86.84	11.52
103	60.85	16.43	148	87.43	11.44
104	61.44	16.28	149	88.02	11.36
105	62.03	16.12	150	88.61	11.29
106	62.62	15.97	151	89.20	11.21
107	63.21	15.82	152	89.79	11.14
108	63.80	15.67	153	90.38	11.06
109	64.39	15.53	154	90.97	10.99
110	64.98	15.39	155	91.56	10.92
111	65.57	15.25	156	92.15	10.85
112	66.16	15.11	157	92.74	10.78
113	66.75	14.98	158	93.33	10.72
114	67.34	14.85	159	93.92	10.65
115	67.93	14.72	160	94.52	10.58
116	68.52	14.59	161	95.11	10.51
117	69.11	14.47	162	95.70	10.45
118	69.70	14.35	163	96.29	10.39
119	70.29	14.23	164	96.88	10.32
120	70.89	14.11	165	97.47	10.26
121	71.48	13.99	166	98.06	10.20
122	72.07	13.87	167	98.65	10.14
123	72.66	13.76	168	99.24	10.08
124	73.25	13.65	169	99.83	10.02
125	73.84	13.54	170	100.43	9.96
126	74.43	13.43	171	101.02	9.90
127	75.02	13.33	172	101.61	9.84
128	75.61	13.23	173	102.21	9.78
129	76.20	13.12	174	102.80	9.73

TABLE I—continued.

Number of Yarn.		Weight of 120 yards, in grains.	Number of Yarn.		Weight of 120 yards, in grains.
International Standard.	English Standard.		International Standard.	English Standard.	
175	103.39	9.67	188	111.06	9.00
176	103.98	9.62	189	111.65	8.96
177	104.57	9.56	190	112.24	8.91
178	105.16	9.51	191	112.83	8.86
179	105.75	9.46	192	113.42	8.82
180	106.34	9.40	193	114.01	8.77
181	106.93	9.35	194	114.60	8.73
182	107.52	9.30	195	115.19	8.68
183	108.11	9.25	196	115.78	8.64
184	108.70	9.20	197	116.37	8.59
185	109.29	9.15	198	116.96	8.55
186	109.88	9.10	199	117.55	8.51
187	110.47	9.05	200	118.15	8.46

TABLE II.

CHANGING ENGLISH COTTON YARN STANDARD INTO INTERNATIONAL METRIC STANDARD.

Number of Yarn.		Weight of 120 yards, in grains.	Number of Yarn.		Weight of 120 yards, in grains.
English Standard.	International Standard.		English Standard.	International Standard.	
1	1.69	1000.00	16	27.08	62.50
2	3.39	500.00	17	28.78	58.82
3	5.08	333.33	18	30.47	55.56
4	6.77	250.00	19	32.16	52.63
5	8.46	200.00	20	33.85	50.00
6	10.16	166.67	21	35.55	47.62
7	11.85	142.86	22	37.24	45.45
8	13.54	125.00	23	38.93	43.48
9	15.23	111.11	24	40.62	41.67
10	16.93	100.00	25	42.32	40.00
11	18.62	90.91	26	44.01	38.46
12	20.31	83.33	27	45.70	37.04
13	22.01	76.92	28	47.40	35.71
14	23.70	71.43	29	49.09	34.48
15	25.39	66.67	30	50.78	33.33

TABLE II.—continued.

Number of Yarn.		Weight of 120 yards, in grains.	Number of Yarn.		Weight of 120 yards, in grains.
English Standard.	International Standard.		English Standard.	International Standard.	
31	52.47	32.26	66	111.72	15.15
32	54.17	31.25	67	113.41	14.93
33	55.86	30.30	68	115.10	14.71
34	57.55	29.41	69	116.80	14.49
35	59.24	28.57	70	118.49	14.29
36	60.94	27.78	71	120.18	14.08
37	62.63	27.03	72	121.87	13.89
38	64.32	26.32	73	123.57	13.70
39	66.01	26.54	74	125.26	13.51
40	67.71	25.00	75	126.95	13.33
41	69.40	24.39	76	128.65	13.16
42	71.09	23.81	77	130.34	12.99
43	72.79	23.26	78	132.03	12.82
44	74.48	22.73	79	133.72	12.66
45	76.17	22.22	80	135.42	12.50
46	77.86	21.74	81	137.11	12.35
47	79.56	21.28	82	138.80	12.20
48	81.25	20.83	83	140.49	12.05
49	82.94	20.41	84	142.19	11.90
50	84.64	20.00	85	143.88	11.76
51	86.33	19.61	86	145.57	11.63
52	88.02	19.23	87	147.26	11.49
53	89.71	18.87	88	148.96	11.36
54	91.41	18.52	89	150.65	11.24
55	93.10	18.18	90	152.34	11.11
56	94.79	17.86	91	154.04	10.99
57	96.49	17.55	92	155.73	10.87
58	98.18	17.24	93	157.42	10.75
59	99.87	16.95	94	159.11	10.64
60	101.56	16.67	95	160.81	10.53
61	103.25	16.39	96	162.50	10.42
62	104.95	16.13	97	164.19	10.31
63	106.64	15.87	98	165.88	10.20
64	108.33	15.63	99	167.58	10.10
65	110.03	15.38	100	169.27	10.00

The SECRETARY. In regard to the proposed diplomatic congress, I wrote the Secretary of State inquiring if anything had been done about it, and have received the following reply from the Assistant Secretary of State:

DEPARTMENT OF STATE,
WASHINGTON, April 18, 1901.

C. J. H. WOODBURY, Esq.,
Secretary, New England Cotton Manufacturers' Association,
45 Milk Street, Boston, Massachusetts.

Sir —

I have to acknowledge the receipt of your letter of the 12th inst. stating that at a meeting of the International Congress for the unification of the numbering of yarns, held at Paris in September, 1900, a proposal for the assembling of an international diplomatic congress for the purpose of putting into legal effect the standards of yarn measurement was unanimously passed, and inquiring whether any preliminary action has been initiated in this line.

In reply I have to say that this Department has no advices whatever on the subject.

I am, Sir,

Your obedient servant,

DAVID J. HILL,

Assistant Secretary.

The SECRETARY. I have also received the following letter, which in translation reads:

FRENCH REPUBLIC.
Permanent Committee of the International Congress of 1900 for the
Unification of the Numbering of Yarns.

PARIS, April 16, 1901.

Mr. C. J. H. WOODBURY, Secretary,
New England Cotton Manufacturers' Association,
Boston, Mass., U. S. A.

Dear Sir —

Mr. PAUL FLEURY, Secretary of the Permanent International Committee for the unification of the numbering of yarns, being absent from

Paris for some days, your letter of April 2nd has been opened by the President of this Committee.

In the name of Mr. FLEURY, we thank you for your invitation to attend your annual meeting.

We are pleased to learn that you have placed among the subjects of the programme the study of the results of the Congress held at Paris last year for the unification of numbering. We sincerely hope that the members of your Association will be of the opinion that it is necessary to adopt the standard in America of the metric numbering. We are at your service to give you all the information which can be of use to you.

We will send you, moreover, in three or four weeks, the complete report of the works of the Congress of 1900.

We will be highly pleased if you can inform us the action that has been made at your meeting to the proposition of general unification of the numbering of yarns of all kinds.

Please accept our highest respects.

F. ROY,

* *President of the Permanent Committee.*

The PRESIDENT. Mr. BROOKS.

Mr. CHRISTOPHER P. BROOKS. Mr. President and gentlemen: It seems to me that it should be a matter of gratification to the Association to know that the Secretary has so ably translated the somewhat extensive and complicated report of the International Conference on the numbering of cotton yarns. It is difficult not only on account of the technical phrases in it, but in consequence of the somewhat rambling rhetoric which is noticeable in connection with the discussions of the congress.

As our Secretary has intimated, the recommendations of the congress are that all textile manufacturers of all nations shall adopt as a standard not only for cotton, but for silk, jute, woolen and all other fibres, the standard of No. one's being based on one metre in a gramme or one kilometre in a kilogramme, so that the numbers will be expressed by the number of metres in a gramme.

This is somewhat similar to the present system of numbering yarns used in France and a few other continental countries, with

the difference that at present the standard in France is the number of kilometres in half a kilogramme, so that the international standard that has been recommended by this conference would make the international numbers just double their equivalent in the present French standard. In other words, at present a No. 10 in English standard cotton yarn, which is used in America and in England, is No. 8½ in French, No. 20 is No. 17, No. 100 is No. 85 approximately; but under the new standard what we now call No. 10 would be No. 17 or thereabouts, what we now call No. 20 would be No. 34, what we now call No. 100 would be No. 170.

This system which has been recommended for adoption, and not only recommended for adoption, but recommended for compulsory adoption by legal measures to be taken in each individual country, is theoretically perfect. There are very few men who do not believe in the uniform standard of weights and measures, and it is the opinion of manufacturers and of scientists—more especially of scientists—that the metric system should be adopted as the standard system of measuring quantities and weights and lengths. This system of measuring cotton yarns and all other yarns according to the number of metres in a gramme would be an extremely simple and extremely advantageous system, one which would lend itself to very simple methods of calculation and would further international commerce between different countries in yarns of various kinds.

But while theoretically appropriate and perfect, there are a number of difficulties in the way of its practical adoption. In the first place, the system that has been recommended is the system of a minority of manufacturers. Taking the number of spindles throughout the world as 100,000,000, which it is now approximately, England having 46,000,000; the United States having 19,000,000; the East Indies having 4,000,000; Japan 2,000,000 or 3,000,000, and other countries using our standard of cotton yarns possessing 10,000,000, will give us a total of something like 76,000,000 or 77,000,000 spindles, or at least

three-fourths of the world's manufacturers making yarns at present based upon our ordinary system in which the numbers of the yarn depend upon the number of hanks of 840 yards each in a pound. Of the remaining one-fourth of the spinners and manufacturers throughout the world, the system adopted varies considerably, and possibly not more than 10,000,000 spindles, or one-tenth of the cotton mills of the world, are at present using the French system. The recommendations of this congress would practically force upon the majority of manufacturers the system which is at present in use by the minority. To adopt this system in its entirety, in order to make it commercially satisfactory in every way it would be necessary for us to change over a tremendous number of machines. It would be necessary for the English spinners and manufacturers to change over many of their machines, for the Asiatic manufacturers to do the same thing, more especially with regard to such machines as speeders, mules, warpers, slashers, and other machines where there are indicators which measure the length of material which passes through the machinery. It would be necessary for us to re-cast the whole of our system of calculating costs. It would be necessary for us to adopt entirely new tables as to production and costs in various departments and to thoroughly revise and change our departmental and technical book-keeping throughout the mills. And while, theoretically, the system that has been recommended by this conference appears to be perfect, it seems to me that there are practical difficulties in the way of adopting it which will prevent its adoption by the world's textile manufacturers. Not only so, but it would temporarily, at least, give an advantage to those nations now using the metric system for measuring their yarns; it would give them a temporary advantage in international commerce. Their mills and systems are all organized on the basis of this system, and for a time, if it were adopted, it would give them a temporary advantage until other nations should adopt it. I do not know what the other members of the committee appointed at Montreal say or how they feel with regard to this,

but it seems to me that had the International Congress in Paris last September recommended for adoption our present system of numbering cotton yarns as the standard, it would have been very much more favorably received by manufacturers throughout the world and would have been very much more likely to have been adopted and I feel that it will ultimately be adopted — not by any legislation, not by any conference, but merely from the fact that the United States is gradually and very rapidly increasing its international commerce in textiles, from the fact that Great Britain already has a large hold on the markets of the world, and from the fact that the American and English machinists are practically the sole makers of textile machinery, and will naturally, unless compelled otherwise to do, continue to build their machines and indicators and other measuring mechanism on the present basis.

I feel that the world will gradually adopt our present system of numbering on the basis of the number of hanks to a pound and 840 yards to a hank, without any legislation or conferences, merely because they will be compelled to do so in order to obtain and maintain their share in the world's commerce. The system that has been recommended by this conference is theoretically perfect, but it appears to me practically impossible of adoption because of the practical difficulties standing in the way. I should like to hear the opinions of any other members of the committee or of any one else interested.

The PRESIDENT. Mr. LOWE.

Mr. ARTHUR H. LOWE. Mr. President, I think Mr. BROOKS has very ably presented his views on the subject. I read this report which was sent me by our Secretary, and I came to the conclusion: As the United States or the United States manufacturers were in no way mentioned or referred to, except in one place as "North America," it was evident that we had very little part in the discussion, and I came to the conclusion that the change would only be made when England was disposed to make it. The repre-

sentative from France was of that opinion, the representative from Germany was of that opinion, and the representative from England said, as I recollect, that he had no instructions to commit the English manufacturers at all to the recommendations of the congress. But I am inclined to think that any one who reads the report of this conference and thinks it over in the line that Mr. BROOKS has presented, will come to the conclusion that they are more likely to adopt for the world's standard the present English and American standard than to adopt the standard which the congress recommends, though it has many advantages. The metric system is theoretically a much better system than the present method of sizing and numbering yarns, and its adoption is desirable.

The PRESIDENT. Mr. SANFORD.

Mr. ARNOLD B. SANFORD. Mr. President, members of the Association: When I received word from our worthy Secretary in regard to this matter I gave it some consideration and read over this report very carefully, and the more that I have studied it, begin to come to the conclusion that we shall probably in time arrive at the metric system. Have looked up a little on the matter, and speaking of England, I have a clipping here which says: "The Decimal Association of England has issued its annual report, which states that instruction in the principles of the metric system has been made compulsory in some of the departments of the English common schools, and at the Congress of the Chambers of Commerce of the British Empire, held in London in June last, a resolution was passed recommending that Parliament legalize the metric system in all parts of the British Empire except India."

So it would seem that England is regarding the matter very favorably.

Upon further pursuing the matter, I found, as Mr. BROOKS has stated, that the United States and Great Britain are the only countries that are really opposed to adopting the metric

system; and yet I find that England in exporting her yarns uses both systems; that is, she puts upon each package which she exports to foreign countries both the English numbering and the metric numbering. So we are gradually drifting that way, and if America is going to do an export business—and I am glad to say that within the last six months I have received at least four urgent inquiries from Turkey and other countries in regard to exportation of yarns, actually meaning business and wanting samples and quotations,—we must conform to commercial conditions of foreign customers. Now we on this side, of course, would have to give up our system and adopt this metric system, which seems to be firmly established by our foreign customers. In fact, France adopted it in 1799, and those foreign countries seem to want it. I do not believe but what the English and Americans can adopt the metric system without a great deal of trouble, and it would be rather a compliment for us, Mr. President, to do it. It would show that we could adapt ourselves to the wants of the foreign trade. I do not think there would be any great stumbling blocks in the way. In England today, there are about as many tables for numbering textiles as there are textiles produced. Is not that so, Mr. BROOKS?

Mr. CHRISTOPHER P. BROOKS. Yes.

Mr. ARNOLD B. SANFORD. Now if we could simplify it in that way—at least for cotton, spun silk and woolen yarn, and have one table, it would be a good thing. (I do not think we could bring in the linen and the jute, as it may not be quite feasible yet.) It would enable a man who wanted to produce a certain kind of a fabric requiring different grades of yarn, cotton and woolen or silk, to give his order correctly for the numbers wanted. I frequently receive an order like this: "Please send me 500 lbs. of 50-2ply yarn. At the same time send me 50 lbs. silk or woolen to go with it, the same corresponding length and number." I of course have to turn to the comparative tables to

figure that out. The average purchaser of goods does not seem to carry that information; he expects the spinner or the selling agent to furnish him with it. So I am inclined to believe we are going to come to the metric system. England already, as I say, is advancing in the line, much more than we are, as you may judge by these resolutions which were actually adopted at this English Congress held at London last June. But it would be of no earthly use for the United States to go into it unless Great Britain would go in and make it universal—that is to say, have it come at one time. In order to prepare us for that we want to wait, perhaps, two or three years, and have each government decide upon the date when it shall go into effect. Then we may all come into line and adopt the metric system at a given date. It would be all right then for every government under the sun to take hold of it. But until we come to that point it would be a simple matter of physical impossibility to take it up here. But I believe England is already in advance on that line and is going to adopt that system before a great while. We want to go for the foreign trade, I want to emphasize that, and have an outlet for both our yarns and our goods; and I hope the American manufacturers will pay more attention to that than they have done, and if they do we want to fix our goods the way they want them, number them, label them, pack them as they want them, cater to their wants and not to our own ideas. The sooner we get into that position the better it will be for this country, that is, to seek an outlet for our cotton mills' surplus productions.

Mr. GEORGE OTIS DRAPER. Referring to this question of the unification of the numbering of yarn, it strikes me very forcibly that we of the Anglo-Saxon race are sometimes very unprogressive in comparison to other nations. When we failed to adopt a plan so universally advantageous as the metric system, it is doubtful whether we can hope for any similar advance in any minor field. The attitude of the various representatives at the congress is certainly instructive, showing how England, alone, blocked the way; and yet we, who look with combined

pity and amusement at their continuation of book-keeping in pounds, shillings, and pence, have no right to condemn, so long as we stick to inches, feet and yards.

We have not, as yet, done much of an export business in cotton yarns, so have less need for a unified classification; but we should certainly familiarize ourselves with the International standard.



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